

TIDES COST-ES1401 Working Group Meeting: Effect of Topography on Short Period Surface Waves

September 15-16, 2015
Institute of Earth Sciences Jaume Almera – CSIC
Barcelona, Spain

General Motivation and Main Purpose

Ambient noise studies are mostly conducted at high frequencies for local to regional scale studies. At short periods the surface waves can potentially be biased by topography if it is not small compared to the surface wave wavelength and penetration depth. So far, the effect of topography is not well understood and often ignored, for instance, tomographic inversions mostly assume a flat surface. Due to the rising higher resolution of ambient noise studies, there exist now an increasing need and interest to better understand and control also the effect of topography on surface waves of extracted empirical Green functions (EGF).

In particular, at the Bertinoro TIDES training school meeting, some researchers expressed their concern on having topography affecting their measurements (e.g., Madeira and Iceland), giving rise to the idea of this group meeting. During the proposed group meeting it is intended to exchange our experiences/observations and to think on how to start to analyze the bias by topography. That is, the main discussion will be on (1) how to evaluate the influence of topography on group- and phase-velocity dispersion measurements and (2) how to organize/kick-off studies on this bias. During a 2nd day we will discuss about bathymetry and the possibility of scattering at islands. Although, there exist a small core group of researchers with observations, this meeting is open to anybody who is interested to participate/contribute/study actively the bias of topography. Thus, the meeting is for anybody who already works on this topic, who wants to study this topic, and/or who can contribute through experiences or with working tools.

Work Plan/Topics

15/09 What is the effect of topography on surface wave dispersion measurements? We will discuss two case studies: Madeira and Iceland. How to start and what are the best strategies to analyze these effects?

16/09 What about bathymetry? Can wave scattering at islands of Cape Verde explain observed later arrivals in the “inter-island EGFs”? What is the origin of these arrivals?

Meeting

We plan to meet at the Institute of Earth Sciences Jaume Almera – CSIC (Lluís Solé i Sabarís s/n, 08028 Barcelona). In principle, this group meeting is limited to a maximum of 15 attendees due to meeting room capacity. Please, if you are interested then send me a mail to (schimmel@ictja.csic.es).